Journal of Ocean and Coastal Economics

Volume 3
Issue 2 *Special Issue on the Economics of Coastal Climate Change Adaptation*

Article 2

November 2016

The Economics of Climate Adaptation on America's Coasts: A Washington Conversation

Dr. Charles Colgan
Center for the Blue Economy at the Middlebury Institute of International Studies at Monterey

Recommended Citation

Colgan, Dr. Charles (2016) "The Economics of Climate Adaptation on America's Coasts: A Washington Conversation," *Journal of Ocean and Coastal Economics*: Vol. 3: Iss. 2, Article 2.
DOI: https://doi.org/10.15351/2373-8456.1065

1. INTRODUCTION

On April 16, 2015 a panel of experts was convened in Washington, D.C. to identify issues confronting the United States as it becomes increasingly clear that large investments will be needed, particularly in coastal regions, to adapt to climate change. The panel was comprised of:

- Dr. Charles Colgan, *Director of Research, Center for the Blue Economy*
- Michael Conathan, *Director, Ocean Policy, Center for American Progress*
- Dr. Robert Kopp, *Rutgers University / American Climate Prospectus*
- Franklin Nutter, *President, Reinsurance Association of America*
- Josh Sawislak, *Former Associate Director for Climate Preparedness at White House Council on Environmental Quality*
- Dr. Jason Scorse, *Director, Center for the Blue Economy at the Middlebury Institute of International Studies at Monterey (MIIS)*

Dr. Charles Colgan of the Center for Blue Economy provided the charge to the panel. Dr. Jason Scorse of the Center for the Blue Economy introduced the event, and Tony MacDonald, Director of the Urban Coast Institute at Monmouth University, moderated the discussion following panel presentations.

2. SUMMARY

The panel was charged to address the economic aspects of climate change adaptation in coastal areas and how a better understanding of the economic issues could lead to quicker and more effective actions in the public and private sectors. A number of economic issues were identified including: the misalignment between present costs and benefits in an uncertain future, the complex policy environment in which decisions must be made, and misrepresentation of economic issues in political debates.

But the panel agreed on several important aspects of the climate change problem. First, the problem—and its associated costs and benefits—is no longer one in a remote future but is already here. Sea level rise already threatens communities on all coasts. Private and public investors are putting hundreds of billions of dollars now into new and improved properties and infrastructure, all of which is intended to last for decades in the future. The Federal Government has

greatly expanded its explicit and implicit insurance against damages from sea level rise and coastal flooding, increasing significantly its underfunded insurance policies. The government has also managed to arrange its budget so that there is every incentive to repair damages and little incentive to prevent them. While there are still very important considerations about the future, with climate change and sea level rise the future is now to a yet unrecognized extent.

The panel also agreed that the efforts to better understand many of what economists call the benefits of ecosystems services will play an important role in the debate (although one panelist challenged economists to come up with a more user friendly term). Understanding these benefits opens up new options for, as one member of the audience put it, "green infrastructure" that continually increased in values in comparison with depreciating "grey" infrastructure.

While there was some optimism that the economic aspects of climate change might not be as daunting in some ways, there was little optimism that the Federal Government would take some of the needed steps to align incentives, supply sufficient resources, and reform policies such as the Stafford Act to drive actions at the level required. In their presentations and in discussion with the audience, the panel focused on finding new partnerships that could drive actions. The recent experience with the passage of the Biggert Waters Flood Insurance Reform Act of 2012, and the subsequent reversal of many of the Act's reforms, demonstrates the extremely difficult nature of enacting real, lasting government insurance reform. It also shows the need for policies that are phased in slowly so as not to "shock" existing policy holders with rapid changes in their insurance premiums.

The business community at the national, state, and local levels was seen as essential because climate change and, in coastal regions, sea level rise is going to affect a very large number of businesses. At the same time, adaptation will require new types of innovative solutions, which could offer important new business opportunities. New partnerships among businesses, the insurance industry, environmentalists, low-income communities, and healthcare can be formed that will greatly expand the range of publics that could support each other in creating a community of resilience that will be difficult to ignore.

Where the leadership will come from to form and drive these new partnerships and to push for new tools and a new workforce capable of bridging the

https://cbe.miis.edu/joce/vol3/iss2/2
DOI: 10.15351/2373-8456.1065

perspectives and interests is another uncertainty hanging over the climate change adaptation efforts.

3. PRESENTATIONS

Dr. Jason Scorse

Thanks for coming. Climate change is a big issue. Liabilities and risk are huge- bankrupting cities and states. There is an opportunity now to rethink relationships with the oceans to create a more sustainable future. This is a long-term commitment for the CBE and UCI.

Dr. Charles Colgan

The question we want to pose is how can economics help us understand our choices of how to adapt to climate changes. This is a different question than the pseudo-economic arguments we are having about whether to mitigate climate change by reducing GHG emissions. I say pseudo-economics because any even cursory look at the most likely scenarios shows that avoiding the damages of climate change in the future is worth many times what we would have to pay today. The mitigation debate has degenerated to what in Maine we called the choice between payroll and pickerel- which was just as wrong 60 years ago.

Adaptation choices present their own economic problems: How do we know which will be the most cost-effective approaches- or which will return the greatest net economic benefits? Adaptation decisions must be made when there is no immediate crisis, and thus the costs of not adapting are hidden, or in the immediate aftermath of a crisis when our response is to promise to make everyone whole. This means our default is to adapt by letting large parts of coastal America drown every so often and then pay trillions of dollars to put it all back so it can be done again.

We do have new options: our attention to restoring and preserving coastal ecosystems may be the most economic approach to adaptation, but the value of such “green” infrastructure seems so much smaller than a massive concrete or rip rap barrier.

And finding ways to pay for adaptation, even if we know what to do, remains a challenge. Some combination of public, private, and philanthropic resources will be needed. But what combination is best in each case? And of the public resources needed, what portion should be federal, state, and local? Despite (infrequent) recognition by decision-makers of the needs to act, our ongoing drive to starve the public sector at all levels of resources pushes actions to minimize damage in 20 years way down on the priority list of any government.

These factors then define the new economics of climate change for the coasts:

- How can the economic case for adaptation of coastal regions best be made, not just where the crisis is or has happened, but where there is a high probability that it will?
- How can we marshal the needed resources?
- How can federal and state policies support economically sensible decisions at the local level, where most of the action will be?
- How do we engage the public and their representatives in a realistic and effective discussion about the risks we face in choosing to adapt to climate change and sea level rise?

We do not expect our presenters today to answer these questions (though if you do have answers, that would be OK). Rather we hope to learn whether these are the right questions, and if not, what we will need to begin to answer them. We hope to leave today with a sense of the task before us and some hope that, with concerted efforts, the answers can be found.

Dr. Robert Kopp

While other effects of climate change are important, the focus on sea level rise and coastal storms is important because there are an estimated 23 million people who live within 6 meters (20 ft.) of the high tide line in coastal America. Moreover, sea level rise is already taking place and already affecting people. Sea level rise over the past century of about 8 inches has exposed an estimated 80,000 more people in the New York-New Jersey region.

And we are making decisions today that have long time scales and will clearly be affected by what we know will happen in sea level rise. We know that a significant portion of the electrical infrastructure in New Jersey that was knocked

out by Super Storm Sandy was built in 1910, so what does that tell us about what we are doing today?

The key to dealing with sea level rise is to understand the problems of risk (known probabilities) and uncertainty (unknown probabilities). We know the direction, if not the exact pace of change. We know that sea level is rising. The problem is that whatever our calculations, there is no single objective probability estimate that will accurately reflect the risks.

Moreover, focusing on the middles of probability distributions is very likely misleading. The focus needs to be on the tails of the probability distributions in order to understand the choices available about how to adapt. There are feedback loops (like arctic ice melting) that create the possibility of significant abrupt changes. And there are often big and important differences between global or regional projections and local effects where many specific factors (like land subsidence) greatly complicate the sea level rise story.

But this assumes that we can take all of the multiple risk factors and risks that have a number, or even a range of numbers associated with them to create estimates of probabilities which have significant variance. We have to move ahead in the face of uncertainty. It may be possible in some cases to develop fairly accurate probability estimates, but the inability in many, perhaps most, cases to transform uncertainty into risk cannot be taken as an excuse for inaction. We will have to make some decisions with imperfect information, because we must make decisions now about infrastructure and development that will last for decades into the future. In this additional sense then, the threat from sea level rise is not a risk of the remote future but of the present.

One additional thought: we need not only new tools to understand the way in which global climate risks become local risks, but a new workforce which can build these tools and help communities use them. For those of us in higher education, this presents a challenge and an opportunity to find new programs that will train people in both the climate science and the social science needed to lead to more effective decisions about how to adapt to the risks of climate change. The new economics of climate change will require new economists to work it out

Michael Conathan

The debates about the costs of mitigating climate change miss the essential and obvious point: that climate change is expensive and is already costing the Federal Government because of the increasing numbers of disasters requiring Federal expenditures in response. This is spending we do not plan for, and so don't budget for, which means we pay attention costs only when disasters are declared. And this is happening more and more often. In recent years the number of federally designated disasters has risen to more than 100 per year, in contrast with 20-30 declared in earlier decades. Studies have shown $4.00 in return for $1.00 investment in upfront mitigation, though many people regard figures like these as too uncertain to act.

Of course, the politics of climate change remain terribly difficult. There is some progress in getting at least some Republicans to be more realistic about climate change. But the private sector must take the lead in refuting the "burdensome costs" argument against anything to do with mitigation or adaptation. While state and local governments are becoming more attentive to adaptation issues, in some cases like New Jersey and New York because they have had no choice, there are still too few state and local governments interested in pushing this issue (though all of them have a big stake in it). This is one more reason that it is critical for the private sector to step up.

One aspect of the economics of adaptation that is beginning to receive attention is making sure the value of natural capital is included in the discussions. Recent studies by the Center for American Progress on the benefits of coastal restoration conducted under the ARRA demonstrated the importance of natural capital in understanding the economics of adaptation. The studies focused on projects in Virginia Beach, San Francisco Bay, and Mobile Bay which enhanced property values, helped bring tourists to the area, and made a big difference in increasing resiliency.

Frank Nutter

The reinsurance industry- the providers of insurance to the insurance industry, has an acute interest in the risks created by natural hazards like coastal storms because reinsurance winds up paying 50 to 60% of losses. Our focus is on the interaction

between extreme weather events and how they interact with the built environment at the very local level.

The insurance and reinsurance industries see climate change from a different perspective than many because we see it show up in the loss data- the actuarial data that is key to our decision making about what risks we will insure and what we will charge to assume those risks. So we have a close up view of the problem, but it is also a view in the rearview mirror, and there is increasing need for reinsurance to become more forward-looking. The capacity to be more forward looking is emerging, as more sophisticated and detailed models of potential catastrophes are being developed.

That increasing need is formed in part by the risks of climate change, but also because we are providing insurance to more and more property. There is currently $16 trillion in insured property values in the U.S., and that has grown by 11% in just the past four years. Equally significant is the severe underfunding of the Federal Flood Insurance Program. Robert Cummins at the University of Pennsylvania estimated that the Flood Insurance Program needs $20 billion a year to cover known risks. The actual appropriation is $1 billion a year. The result is that the unfunded FEMA liability in the future is equal to the unfunded Social Security liability.

While most of the attention about insurance in terms of coastal flooding focuses on the Federal Flood Insurance Program, the insurance industry is primarily affected by state level decisions. Insurance is regulated by each of the states and there is a constant struggle in each of the states to persuade regulators to get the rates needed to cover their costs. But at the same time, the reinsurance industry has supported the idea of eliminating the Federal Flood Insurance program and folding flood insurance into the regulated state insurance markets to allow a more uniform approach to providing and pricing insurance across the country.

Whatever the ultimate approach to insurance, however, it is clear that under any circumstances the government, particularly the Federal Government, must begin to take the increasing risks from climate change seriously and begin to get the incentives to live with those risks right. Some Federal laws such as the Coastal Barrier Resources Act definitely push in the right direction, but the Federal Government has enormous leverage in so many ways over where buildings are

put and how they are built. The secondary mortgage markets that are underwritten by Fannie Mae and Freddie Mac are just one example of where action could be taken.

One other point that we feel strongly about is that there must be adequate funding of the federal agencies such as NOAA and NASA that provide the weather and climate data that we need to do our jobs in the insurance industry.

Josh Sawislak

In places as far away from one another as Kivilina, Alaska on the Bering Sea and the Rockaways on Long Island, climate change and sea level rise are not remote future threats but are present today in how these towns and their residents are thinking about the future. They, and many other communities, now face the problem that protecting them is too short-term and moving them is too expensive.

The most important thing about the costs of adapting to climate change is that we are already spending large amounts of money. We have spent $136 billion over three years for disaster assistance, or over $400 per person in the U.S. We have $1.3 trillion in flood insurance policies in force, and the program is $32 billion in the hole. And the figure of a 4:1 benefit-cost ratio just covers the replacement cost. It does not fully compensate all losses or the investments needed to adapt to future threats.

In short, we are already adapting to climate change. We're just doing it badly. We are spending a lot of money fixing the results of past decisions and not spending nearly enough money to get the very large benefits available in the future. Once we understand that the problem is already here and a good part of the solution is embedded in the things we are already doing, we may begin to make progress in getting our priorities, and spending, properly aligned.

There are two steps we could take to make this realignment occur sooner. One is to find another name for "ecosystems services benefits". All of us here understand what we mean by that, and there is solid evidence that these benefits are important, but right now it's difficult to motivate people with this term.

At the same time, we should reframe the discussion about climate change adaptation by framing climate change and sea level rise adaptation as a problem requiring innovative solutions and a real commitment to innovation. Innovation is

something we Americans are pretty good at, or at least think we are, and it is an idea that has bipartisan appeal.

Finally, one role of the Federal government in addressing adaptation that has not been mentioned is the adoption of national building standards. We need to require that we build it right the first time rather than repeating the same mistakes over and over again.

4. DISCUSSION

Tony Macdonald (Moderator)

What can Washington do about the financial misalignments that are inherent in climate adaptation decisions?

Josh Sawislak

One major action would be to change the way we account for adaptation spending in the Federal budget. Right now we count all of the spending we do to recover from disasters as "emergency spending", which is off budget, while everything we do to prevent or mitigate future disasters is on budget. In Washington terms, prevention is "scored" by the CBO and thus faces all of the constraints on spending now in place, while recovery is "unscored". Thus, here in Washington the things we should be doing are severely restrained and the things we want to avoid doing can be done without limits.

Frank Nutter

A high priority for us is to revise the Stafford Act in such a way as to condition disaster assistance to communities on the community's taking some actions to reduce the need for disaster assistance. This could include adopting appropriate building codes or taking other effective planning steps.

Michael Conathan

Washington, or at least Congress, will not lead. Congress will have to be dragged kicking and screaming into taking some kind of action. Stafford Act reform is a brave and worthy idea, but it is hard to see how it will get done anytime soon.

But there are people who could make a difference. The business community is particularly important in this regard, not just for insurance issues, but for larger issues of public investment and planning.

Josh Sawislak

"Climate" has become a polarizing issue, which means the Administration cannot lead on the issue. The only way that it will be effectively addressed is if both Congress and Administration are avoided by building a much wider "culture of resilience" that is broadly inclusive enough to motivate action. This has to accompany a shift to focusing on climate issues as already here and now, not just some time in the future.

Mike Conathan

While focusing on today's problems may be a useful way to get people's attention, it risks leading to solutions that are too incremental. The future is going to be much different and the preparations for that future have to be on a scale and the actions of types that we are just not familiar with.

Tony MacDonald

We are much more aware of nuisances arising from climate change at this point. We still have not fully come to grips with the frequency and size of catastrophes that we will have to deal with.

Question from the Audience

Where are the partnerships going to come from to make progress on climate change?

Frank Nutter

One partnership that has emerged and is evolving is between the insurance industry and the environmental/conservation community. There is clearly a common interest in using natural features to buffer and protect properties from storm-related damages.

Robert Kopp

The Risky Business project is a good example of forging partnerships among leaders from different sectors who have in common some understanding of risk, but not necessarily much understanding of climate. But one major issue is that the state and local analogs to the Risky Business project have not really fully emerged to lead the discussion at those levels of government.

Comment from the Audience

There is a great deal of attraction to the idea that the "green infrastructure" which could assist with climate change adaptation will only appreciate in value over time, while the "grey infrastructure" of fully engineered solutions must inevitably deteriorate and depreciate over time. This will attract the attention of business, but businesses are also leery of meeting with government on these issues fearing that it will only result in more regulation.

Josh Sawislak

There is some credibility with the business community in the Department of Commerce which may have some advantages once businesses begin to fully understand how these issues affect their bottom line. For most businesses climate change and sea level rise are not bottom line issues right now, but they will be. There is an analogy with issues of cyber security. Most businesses viewed cyber security as something that looked like just an unending stream of costs with no payback. Until banks and stores and multinationals started getting hacked and millions of peoples' credit cards and social security numbers started getting traded around the Internet. Then the virtues of spending money on prevention became much more apparent.

Question from the Audience

How do we expand these discussions to include other communities?

Josh Sawislak

There is already a significant and growing relationship between the public health and climate communities. This is an important link because, as we know, people's

willingness to be receptive about risky issues like climate change and sea level rise depends more on the messenger than the message. The health community tends to have high levels of credibility.

Frank Nutter

I don't think we can rely on the public to initiate or sustain these conversations. It has to start with responsible government officials leading the discussions and helping the public to understand the issues.

Tony MacDonald

Eleanor Ostrom has shown throughout her work how it is possible for people with very divergent and conflicting views to come together the manage common problems when the common nature of those problems is seen as more important than individual issues. There may be lessons in her work that could be drawn upon.

Michael Conathan

Another public that is involved in discussions about climate change more often by academics than by the people themselves is low income communities.

Jason Scorse

The coast is such an important place to so many people that it really should not be difficult finding communities of interest in the future of the coast, particularly if people start posing solutions such as in post-Tsunami Japan where the idea of building a massive sea wall across major stretches of coastline seems to have gained traction. Our problem is not only to adapt to the threats of sea level rise and climate change but to preserve those aspects of coastal America that are most important to us. In this sense we have to rethink what the coast will be in a world in which living and working in coastal areas is going to be very different than anything we have been used to. And we need to look overseas, particularly to Europe, where the governments are much farther along in rationally planning for coastal adaptation.

Charles Colgan

There have been several references in the discussion so far to the need to bring the business community into the discussion at the national, state, and local levels. To do this, we need to have a much better picture of how local and regional economies are going to be affected by sea level rise and how they might adapt absent anything else. One thing we know is that we will adapt to climate change. Our relationship with the coasts as places where we live, work, and play are going to change and in some places there are going to be major shifts in regional economies, including economic activity that is not directly related to coastal geography or ocean resources. This is an essential element of the economics of coastal adaptation that has received little attention, but one which we hope to work on at the CBE.

Tony MacDonald thanked the panel and the audience for their participation. The event concluded at 2:00 p.m.